

282.15-31/3  
November 1985

The Naval Aviation Safety Review V-31 #5

U.S. Navy

# approach

SOCIOLOGY & ECONOMICS  
DETROIT PUBLIC LIBRARY

Detroit Public Library

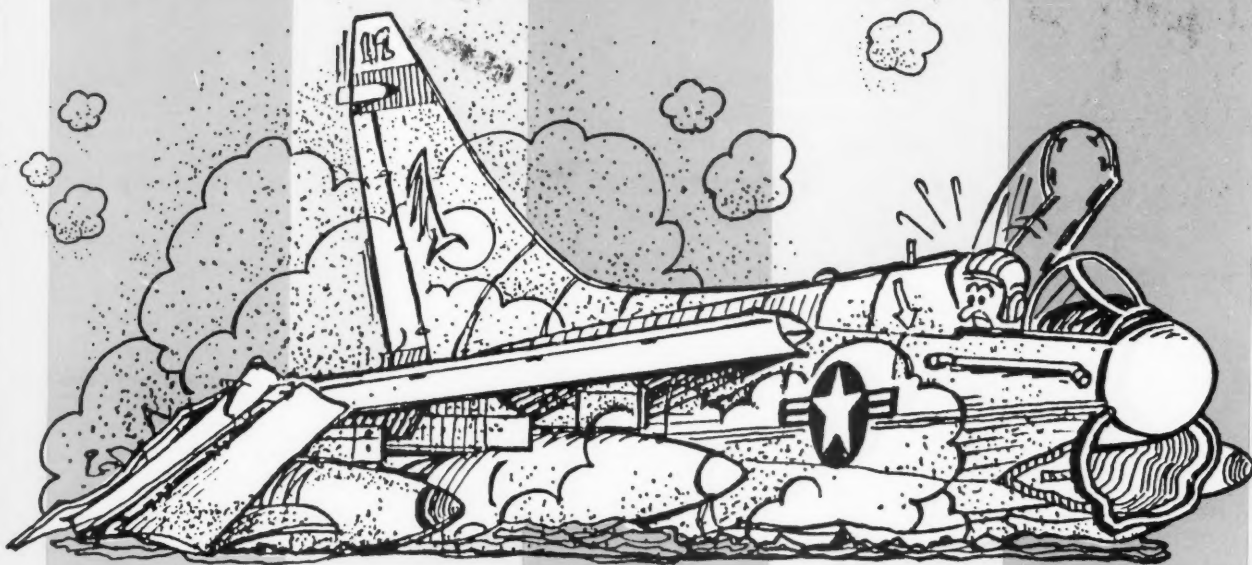
OCT 29 1985

Depository Document

DETROIT PUBLIC LIBRARY

JAN 15 1986

TECHNOLOGY & SCIENCE



"I desperately need a huge accident where no one gets hurt."

See  
"Pleas From a Frightened Safety Officer"  
on page 27

# The Most Asked Questions About Approach

The following are some questions we get time and time again from readers:

## How do I submit an article to Approach?

It should be ideally four to five pages, typewritten double-spaced. Mail it to the address on page 1 of any issue. Include a cover letter with the author's address and phone number. We also need a short (about 50 words) professional biography of the author and a close-up photo, if possible. We hope to start running author's photos soon.

## What should I write about?

The best Approach articles are the "There I Was" . . . stories: First person narratives of actual in-flight situations.

Other types of articles we place a priority on are:

- Humorous articles.
- Articles which present a nugget's view of safety.
- Editorials. Got an axe to grind about safety? Send us your "two cents."

If you're not inspired to write an article, we also need:

- Photos. Lend us your Sierra Hotel snapshots from your "I Love Me" album.
- Poster ideas. Just describe it — we'll do the rest.
- Feedback. How is Approach doing? Has an Approach article helped you out of a bad situation?
- Cartoons
- Words and definitions for crossword puzzles. Not to worry, we'll construct the puzzle.

## When will my submission be in the magazine?

Anywhere from two to six months. We will send you a letter acknowledging receipt right away, and another letter about two weeks before the article is printed.

## Do you use every item submitted?

No. Many items are "killed" for a variety of reasons. Some are just not written well enough for magazine copy. Others are technically inaccurate. Unfortunately though, some very good articles are also killed. We try to deal with controversial topics, but some articles, even ones that seem relatively tame, can inadvertently fall on the wrong side of hot political issues. Also, some well-written articles deal with topics which we feel have just been overdone. We believe, however, that every worthy article that is fit to print will make it eventually.

## Will my article get edited?

We reserve the right to change any submission as we see fit. But we are equally committed to preserving the author's style and intent. We know over-editing can ruin a good article, so we try to edit as sparingly as we can.

John Flynn  
Editor

# inside approach

Vol. 31 No. 5



Cover illustration  
by Jack LaBar

## ● FEATURES

- |   |    |
|---|----|
| <b>I Now Pronounce You Boss and CAG</b>   | 2  |
| <i>By Peter Mersky. A think piece on the air department/air wing "rapport."</i>           |    |
| <b>Wet Suits for Everyone?</b>  | 10 |
| <i>By Lt. Joe Vaughan. VOD/COD passengers to get cold water protection in ditchings.</i>  |    |
| <b>Trivial Pursuit, Strike Fighter Edition</b>  | 12 |
| <i>By Cdr. C.A. Langbehn. Here's a game to prepare for aircraft systems exams.</i>        |    |
| <b>Pieces of a Puzzle</b>   | 13 |
| <i>By ADCS "Red Dogg" Moss. Mishap aircraft pieces may provide important safety data.</i> |    |
| <b>Night Skimmer</b>  | 16 |
| <i>By Bud Baer. A low-level bomb run is so low the A-6 skips off the water.</i>           |    |
| <b>Light Planes Aren't the Same</b>   | 19 |
| <i>By Cdr. Philip F. Swain. Naval aviator has forced landing in civilian light plane.</i> |    |
| <b>Remember the 4th Priority</b>  | 20 |
| <i>By Ltjg. Eric Ellefsen. Check your checklists as though your life depended on it.</i>  |    |
| <b>The Air Wing Safety Duty Officer vs. Battle Flex Deck FOD</b>                          | 22 |
| <i>By Lcdr. Steve Bulwicz. How to destroy FOD with plenty of walkdowns.</i>               |    |
| <b>He Sleeps with It Under His Pillow</b>   | 24 |
| <i>By Cdr. Richard H. Porritt, Jr. Various, unique ways to study NATOPS manuals.</i>      |    |
| <b>Pleas from a Frightened Safety Officer</b>   | 27 |
| <i>By Lt. D.K. Bullard. Let's watch each other so the mishap misses you and me.</i>       |    |
| <b>Human Factors Consideration in Detachment Planning</b>                                 | 30 |
| <i>By Lt. Jerry M. Linenger. Ways to make dets less stressful to naval aviators.</i>      |    |

## ● DEPARTMENTS

Air Breaks	8
Anymouse	14
Bravo Zulu	28
Letters	32

Detroit Public Library

OCT 29 1985

Depository Document



Commodore Henri B. Chase, Commander, Naval Safety Center  
 Capt. John P. Smith, Chief of Staff  
 Capt. S.P. Dunlap, Director, Aviation Safety Programs  
 Cdr. Allen K. Mears, Head, Safety Publications  
 Lt. John M. Flynn, Editor

Approach is a monthly publication published by the Commander, Naval Safety Center. Address comments, contributions and questions about distribution and reprints to:

Commander, Naval Safety Center  
 Attention: Approach — Code 71  
 NAS Norfolk, VA 23511-5796  
 Telephone: Commercial (804) 444-1321; Autovon 564-1321; FTS 954-1322

Library of Congress Catalog No. 57 60020. ISSN 0570-4979. The contents should not be considered directives and may not be construed as incriminating under Art. 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law. Funds for printing this publication have been approved by the Navy Publications and Policy Committee. Requester publications postage paid at Norfolk, Va., and additional entry offices. Approach is available for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

approach/november 1985

# I Now Pronounce You Boss and CAG







"... the wing doesn't always understand current areas of concern around the ship. We have to work together, motivate the troops."

## The Shotgun Marriage of the Air Department and the Air Wing, A Discussion

By Peter Mersky

How many times have you, as a wing crew member, looked up in frustration at the tower and questioned the parentage of the people behind the glass? Or that of the yellowshirt in front of your plane who seems to be doing his best to hand you off to the fishes? Really? *That* many? There always seems to be an ongoing love/hate relationship between the air department and the air wing.

Captain Mike Sullivan was the Boss on the USS *John F. Kennedy* (CV 67) from 1980-82.

"I wanted the job," he says, "I came in saying 'we're really gonna help the air wing!'" He soon found out it wasn't that simple. "There's an inherent adversarial relationship between the Air Boss and the air wing . . . the wing doesn't always understand current areas of concern around the ship. We have to work together, motivate the troops."

Working together seemed to be the underlying theme for any air boss I talked to. The smoothest operating ships seemed to be the ones where the Boss and the CAG appreciated his counterpart's role and particular problems, and tried to work within those parameters and possibly learn a



"For a nugget . . . the roar in his helmet is literally the wrath of God from above . . ."

little bit about the other's job.

Naturally, things don't always go smoothly, no matter what the intentions of the participants. Although there is a strong chain of command, sometimes the chain is jumped. For instance, the handler works directly for the Air Boss, and the wing maintenance officer reports directly to CAG. The job of the embarked air wing and its aircraft is to fly. When aircraft sit in the hangar bay, CAGs get nervous. Maybe they call the handler and ask why some aircraft aren't on deck. Hey, the handler responds, I have to get the scheduled launches off first, then maybe I'll have space for your aircraft. Not good enough. After repeats of the same sequence, CAGs have been known to call out the handler directly, calling him nasty names and questioning his professional qualifications, among other things. It's all done in the heat of battle, and lasting, deeper intentions are usually not meant. But the handler goes to the Air Boss — his leader — and the Boss calls CAG, and maybe it gets out of hand and they end up in front of the Skipper. Whoa!

Most Bosses and CAGs agree that they try to work things out at their level before having to see the ship's CO, or having the matter taken out of their hands and wind up on the bridge anyway. It's just not good politics to get the "old man" involved.

Lt. Bob Warren, a former ABCS, stresses the difficulty of keeping the problems local and the role good communications play in the Air Boss/CAG scenario. A man from supply decided he would use a forklift to accomplish some work he needed to do. He was not a licensed operator, but he climbed in and accomplished his task. He left the forklift without properly setting the brake. The carrier was at anchor and the deck had a slight list; the lift rolled into a parked aircraft and broke a wing. The CAG went right up to the CO, bypassing the Boss, and said, "The Air Department ran into one of my planes!" Well, the Air Department didn't do it, but that's what the Captain heard first, before the Air Boss. "There was a little friction," Warren concluded. "Another day, we had a problem starting the forklift. We were also doing something with the Tilly (the big crane used to hoist aircraft on and off the flight deck in emergencies). The battery was dead in the forklift, but before it was over, the AIMD officer went to the Captain and complained that the air department had burned the starter up on the Tilly. All that was dead was the battery in the forklift. But that's not what the skipper heard. It's all communications."

The added stress of going into combat can, of course, modify methods of operations and individual perceptions. In the early morning hours of December 4, 1983, Captain Mike Boston on the *Kennedy* had to contend with a hurry-up call to launch VA-75 and VA-85 A-6Es to join a strike force from the *Independence*. The mission was to attack rebel positions above Beirut, Lebanon, and aircraft from *Indy's* CVW-6 and *JFK's* CVW-3 were to mount the first alpha strike by U.S. aircraft since 1973. When the Air Boss knows mission requirements well in advance, he can consider fueling and



arming requirements and preposition aircraft the night before to best accomplish the job of launching the strike. But if, as in the case of the Lebanon strike, requirements are laid on without much notice, he has to do an almost *ad hoc* cycle, considering such things as elevator placement and availability for aircraft and bomb movement. For instance, he wouldn't want to start aircraft engines near an elevator used to move bombs, especially if the lift has ordnance on it.

Another important area of consideration is the Air Boss' conduct on the radio. By the time an aviator is into his second cruise, he should feel comfortable about, or at least understand, the tempo around the ship and the landing pattern. A caustic comment from the Boss on the radio should do no more than cause an involuntary facial twitch. But for a nugget operating in workups and his first CQ, the roar in his helmet is literally the wrath of God from above, and it can have disastrous results. Instead of concentrating on flying the aircraft to a safe trap, the nugget's nervous attention is refocused on the invisible presence in the tower. All of which means that he's not looking or thinking where he should be.

In the same vein, seasoned crews can rapidly dismiss a "screamer" Boss, which can also lead to disaster. A Boss who develops the reputation as a screamer usually loses the respect and, most important, confidence, of the flight crews — and his own deck crews. Capt. John Mazach, former CAG Three commented, "You've got to establish yourself professionally and quickly." This holds true for the air crews, as well, but he was speaking directly of the Air Boss who has such a visible presence. Only the ship's CO is more important throughout most of the flight operation cycle.

There is a natural tendency to relax during ground operations not involving actual flight operations. This can



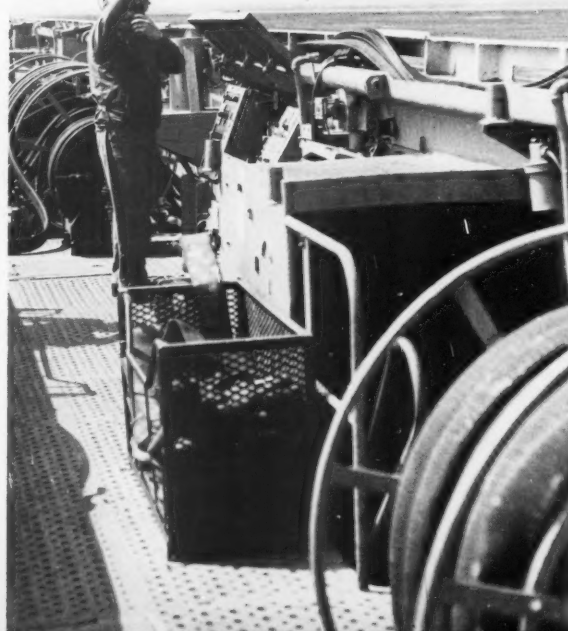
lead to complacency and, ultimately, problems. Capt. Ken Storms, currently CNO Aviation Safety Coordinator, was the Air Boss in the *Kitty Hawk* (CV 63) from 1982-84. He recalled one incident which highlighted the nonflying aspect of the Boss/CAG relationship. He quickly established the rule that anyone working around the aircraft, or actually *on* the aircraft, would wear a cranial helmet. The edict met with stiff opposition, not only from the troops, but their department heads. It was too hot on the deck, they said, and cranials only made things more uncomfortable. But Storms recalled an A-4 squadron he had served in. One day he watched a plane captain working atop a Skyhawk's intake. Suddenly, she slipped and fell to the ground, sustaining severe head injuries which caused permanent damage. He vowed he would never be a party to such an unfortunate sequence.

The skipper of the carrier backed his Air Boss against the heavy resistance of the air wing. Vindication came when a mech fell off an F-14 while wearing a protective helmet. The young man was uninjured from his fall.

Two other areas of operation aboard a carrier involve maintenance and the deck crews, primarily the Aviation Boatswain Mates; the ABs. Storms commented, "The ABs are the soul of the carrier." Enlisted people on both sides of the ship/CAG picture can learn from the ABs. Lcdr. John Starnes of the Naval Safety Center's Air Operations Branch agrees.

"The ship is the central training point. They must train all the people, both in the air department and the squadrons, to work together during the cruise. The air department is the 'hub of the wheel.'" ABCM Steve Theriot, an experienced handler, and currently senior NCO of the NATTC Lakehurst Det at Norfolk, observed:

"The ship's operations are far more complex than many





"The ABs are the soul of the carrier." Enlisted people of both sides of the ship/CAG picture can learn from the ABs.



6

people realize. I think that creates a learning curve. You marry the ship's company and the air wing. Midway through the deployment the two are functioning almost like a machine. But you come home, go into the yard for an overhaul or lay alongside the pier for work . . . you lose people from both groups and you begin to lose the sharp edge you worked so hard to get. You go out again and you have to start over."

On the subject of maintenance, Warren had several comments. "The air wing has to do its mission. The availability of aircraft — they need the numbers of aircraft — x-amount of fighters, x-amount of tankers and special mission aircraft. . . . How good the availability is depends on the complication factor. Some aircraft, like the E-2 and F-14, have to spread their wings to perform maintenance checks and functions. The Tomcat seems to be the most critical. Every time you turn around, seems like you have to spread a Tomcat."

There are only certain areas on the flight deck where the tiedown is strong enough to hold a F-14 conducting high-power turns. When can you do this? Certainly not during most flight operations. Usually in the evening, during slack time. How many aircraft are going to be available — mission ready — is directly determined by the ability of the air department to schedule the aircraft for high-power checks. Warren continued:

"The lowest man on the totem pole is just as important as the Boss. If the guy's not there to ride brakes, you're not going to move that airplane. If the Captain's on a course, and he has

to maintain that course, you might have a 30-minute window to run the elevator down, pick up the airplane that the squadron has wanted for two days, and put it out at the high-power, wing-spread position.

"Now all of a sudden, after asking for a high-power turn, they don't have the canopy pressurized or the seats are not in the plane. You can't get that plane ready in 30 minutes and you've lost the opportunity to perform necessary maintenance." The wing perceives the air department as not being able to accommodate them. A squadron maintenance chief is asked why the other three aircraft aren't up, he might say, "Well, the ship only gave us five wing spreads. It's a difficult situation sometimes."

The area of maintenance is one of the paramount reasons why inherent animosity exists between the Air Wing and the Air Department. Prior to integrating with the ship, the wing is used to operating ashore, with a slower OP Tempo, and near-unlimited space. Coming aboard, the wing now has to contend with significant space limitations, congestion, high Op Tempo and other constraints which can all be a shock to the maintenance troops.

There are 500 people in the air department, plus the people in the squadrons. The Air Boss is responsible for the planes, the people and everything associated with them. He is responsible for 2,000,000 gallons of JP-5, 80 miles of piping and sometimes, the accompanying ships, such as making sure they don't flash signals during night operations as well as being properly positioned for response to a SAR situation.



There are no quick solutions to the problems created by the shotgun marriage of an air wing to an aircraft carrier. The main intent of this article has been to discuss the situation with knowledgeable, experienced people, to open the topic up, bring it into the light. (Capt. R.C. Allen, commanding officer of the USS *America* (CV 66), believes that his ship has one of several solutions: the combined wardroom. Not only does his carrier not have the physical layout for a "dirty shirt" wardroom — usually located forward, under the bow cat — but administratively, the division of air wing and ship's company wardrooms would not be permitted. "They *have* to talk to each other," Capt. Allen said.) As mentioned previously, most of the people interviewed stressed the role which good and bad communications, and respect for other people's jobs and problems, play in a smooth-running operation. Now, some of you folks out there might say you've never heard of or seen any big problems. I'd like to know what ship that was!

Peter Mersky is a staff writer for *Approach*.



The author would like to extend a special thanks to the crew of the USS *America* (CV 66) for their hospitality while he took the photography which accompanies this article.





8

**Three Times the Charm.** During a functional check flight, the P-3's No. 1 engine was shut down in accordance with PMCF procedures. Restart brought smoke and clear fluid coming from the tail pipe, and the start was terminated. Although the smoke dispersed, a three-engine landing was quickly made. Post-flight maintenance inspection revealed an engine oil leak in the turbine section. A turbine external pressure line gasket was replaced, and, following several engine starts and a discrepancy-free ground maintenance turn, the aircraft was again flown.

During this second PMCF, at the same point in the flight as the first, smoke was again observed and another three-engine landing made. Inspection revealed oil leaking near the turbine. The aft scavenge pump was replaced.

The next day, the P-3 was flown around the pattern and a small amount of smoke was detected from the No. 1 engine after the scheduled shutdown. Ten seconds later, the

smoke increased and fire was observed coming from the tail pipe. The pilot declared an emergency, tried unsuccessfully to extinguish the fire, and again made a three-engine landing. The fire was extinguished during roll-out. After the aircraft stopped and the three operating engines feathered, the crew exited the aircraft safely.

Inspection again revealed an oil leak near the turbine. A replacement turbine was installed and a fourth, and successful, check flight was accomplished. AIMD investigation of the faulty turbine revealed a worn labyrinth seal in the turbine section.

**Incorrect CSV Settings.** The ship was in a long period of continuous at-sea operations, including 3½ weeks of intensive contingency operations. An A-6 crew manned up, noting their aircraft's weight at 48,000 pounds. Launched from the No. 3 waist cat, they noticed a softer stroke and an initial settling below

flight deck level prior to achieving a positive rate of climb. Post-flight investigation revealed several discrepancies in the catapult sequence which almost cost an aircraft and possibly its crew, specifically, an improper CSV setting for the A-6 and the failure of the central charging panel operator to suspend the launch, in violation of COMNAVAIR-PAC/COMNAVAIRLANT INST 3100.4.

Only the alert and knowledgeable reaction of the A-6 crew saved themselves and their valuable aircraft. The bottom line is aircrew preparedness, accompanied by constant crosschecking. The squadron CO said, in part, "... given a heavier aircraft, a premature clearing turn, a dark night and/or bad weather and the probable results are only too predictable... launching carrier based aircraft allows no room for error. From the time the aircraft is placed in the shuttle until the fire button is pressed, every man in the chain must know and perform his

# AIR BREAKS

job perfectly, including the immediate suspension of the evolution if there is the least doubt concerning any matter pertaining to the launch."

Shots below optimum end speed will happen again. Be prepared.

**Hornet Night Oscillations** An F/A-18 was launched from the CV at night. The Hornet is a hands-off-the-controls aircraft during launch, automatically establishing the proper pitch angle. In this case, however, the plane stopped rotating well before establishing the required fly-away attitude, with resulting Christmas lights in the darkened cockpit. The pilot selected afterburners and grabbed the control column. The Hornet immediately began a series of severe longitudinal oscillations. The pilot recalls seeing the altitude display pass 120 feet "at least six times." During one nose-up oscillation, the angle was of sufficient magnitude for the Hornet's instrument panel lights to be recorded by the carrier's island-mounted PLAT camera.

As the airspeed increased, the pitch oscillations worsened. Finally, a reasonably controllable speed of 240 KCAS was established and sufficient altitude was gained. An assessment of the situation indicated the control system (stab) had reverted to "mech mode," (from electrical). Climbing at 5 degrees nose up, the pilot attempted a control system reset. The F/A-18 immediately and aggressively pitched over to 18 degrees nose down. While preparing for ejection, the pilot applied back stick and managed to recover the aircraft. After gaining more altitude, another reset was attempted. Again, the Hornet pitched over to -18 degrees, but this time with a 30-degree angle of bank roll thrown in. Following recovery, the pilot elected not to attempt further resets.

External tanks were jettisoned,

following NATOPS, and after a 1.5-hour flight in "mech mode," a short field arrestment using power vice control inputs was accomplished. This incident occurred during this pilot's first night carrier qualifications during this line period, and in the words of his CO, "Even with the introduction of 'high tech' jets, it was the man in the machine that allowed a hazard report vice an MIR to document this incident."

**Things That Go "Bump!" In The Night.** The student pilot had been briefed as the second wingman for his first night solo formation flight. He was to take off, fly to the operating area, and when instructed, join with his flight lead for the basic formation work, then return to base for night touch-and-go practice. The takeoff roll was routine until, passing 100 knots, the pilot heard a loud bang in the side of the aircraft. A quick scan of the engine instruments revealed no engine malfunctions. However, this seemed more than the standard "night noises."

Upon raising the landing gear, the pilot noticed an unsafe starboard main landing gear indication. He remained below 200 knots in accordance with NATOPS, and climbed to a safe altitude overhead the field. He contacted Base and told the SDO of his predicament. The SDO pulled out NATOPS and went over the steps for an unsafe gear with the student.

When the pilot lowered the landing gear, he got a "three down and locked" indication. Since NATOPS prohibits cycling the gear after an unsafe "up" indication, the formation portion of the hop was aborted. However, since the gear was down, and the student was over the field with a lot of gas, he asked the SDO if he could do the touch-and-go's any-

way.

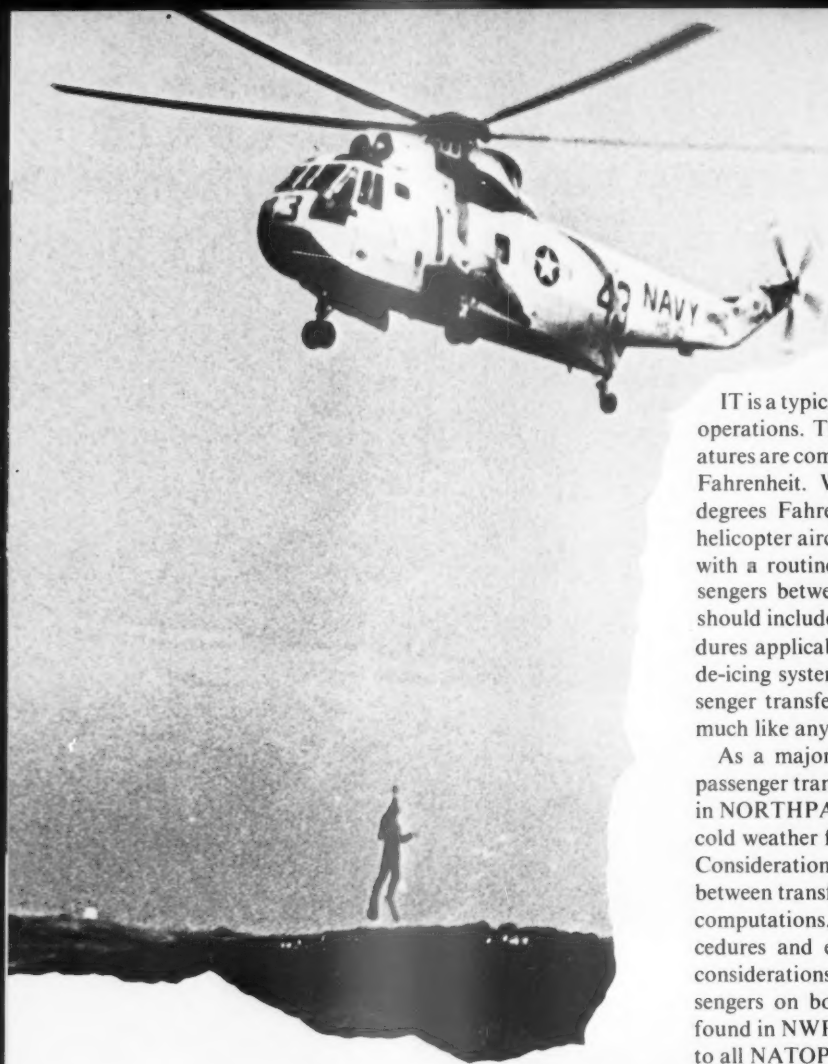
The SDO approved the request and the student completed six touch-and-go's, with an uneventful full stop landing. He reported the aircraft "down" to maintenance control because of unsafe gear, and down for nights due to an inoperative landing light. He didn't do a post-flight walk-around inspection.

The plane captain on night check noticed a large puddle of fuel beneath the right wing. The right main landing gear door was missing, which explained the unsafe gear indication and the inoperative landing light. The light was gone. All that remained were a few hanging wires. The next morning, during the runway sweep for FOD, the landing gear door was discovered along the edge of the runway *in the side of an eight point deer*.

Although it is easy to be an arm-chair quarterback, several things occurred during this incident from which we can all learn. First, no emergency, no matter how small, should be taken as entirely routine. The decision to do touch-and-go landings after an unsafe "up" indication was questionable. Although no further complications resulted, the deer could have done more damage to the strut, or a larger leak could have resulted from the door being torn off; the final outcome could have been different.

A thorough post-flight inspection should have been conducted. Just as important as it is after an ACM mission to check for loose fasteners and panels, so it is just as important after flying a two-hour cross-country. A complete post-flight walk-around would have saved this pilot a lot of embarrassment the next day.

*Submitted by Lt. R.L. Sporer,  
VF-51*



# Wet Suits For Everyone?

By Lt. Joe Vaughan

IT is a typical winter morning during Northern Pacific fleet operations. The wind velocity and the ambient air temperatures are combining to create a wind chill factor of 5 degrees Fahrenheit. Water temperatures are hovering around 45 degrees Fahrenheit. The seas are running 7 to 9 feet. As helicopter aircraft commander (HAC) you have been tasked with a routine logistics run to include the transfer of passengers between two small boats 30 miles apart. The brief should include a word about icing conditions, specific procedures applicable to cold weather operations, anti-icing and de-icing systems and aircraft limitations. As far as the passenger transfer is concerned, that's no big deal. It's pretty much like any other passenger transfer. Right? Wrong!

As a major mission of most deployed helicopter units, passenger transfers during cold weather operations (whether in NORTH PAC, NORTH ATLANT, Sea of Japan or any other cold weather fleet operations site) require specific planning. Consideration must be given to distance and communications between transferring and receiving ships, weight and balance computations, applicable squadron standard operating procedures and emergency ditching requirements. Important considerations when briefing cold weather ditching with passengers on board are the anti-exposure suit requirements found in NWP 42 and OPNAV 3710.7L, which is applicable to all NATOPS users.

NWP 42 states: "For helicopter operations where sea surface temperature is 50 degrees Fahrenheit or less, anti-exposure suits or wet suits shall be worn. Passengers shall be provided the anti-exposure suits and shall don them prior to boarding the aircraft and remove the suits only after landing." As a HAC you have a clear-cut requirement: Any passengers (or crew members for that matter) flying in your aircraft under these conditions shall wear anti-exposure suits or wet-suits. OK, fine. But what about borderline conditions of water temperatures between 50 degrees and 60 degrees Fahrenheit? 3710.7L states the commanding officer of the unit concerned must make an assessment based on SAR factors. Final determination with regard to the wearing of anti-exposure suits shall be made by the commanding officer or officer-in-charge of the unit based on the pertinent factors listed in OPNAV 3710.7L.

So, you have determined you are going to need anti-exposure suits for the passengers you will be hauling. The suits will have to be donned prior to bringing the passengers aboard. Some questions immediately come to mind: How will



these requirements affect your ability to make assigned overhead times? What type of heads-up must be given to the ships transferring and receiving passengers? Most importantly, what safety considerations should be included in the passenger's brief concerning the anti-exposure suits? In answering these questions you need to look closely at the anti-exposure suit you most likely will be providing your passengers.

The Bayley survival suit is the anti-exposure suit carried by some logistic U.S. Navy helicopter detachments. The suit is a "dry suit" and, if used properly, is a proven cold-water lifesaving device. Though it provides excellent exposure protection when correctly donned, several aspects of the suit are important to note when preparing for passenger transfers during cold weather. Points of interest to the HAC include: the time required to don and remove the suit, the restricted movement and reduced digital dexterity of the passenger once the suit is donned and the natural buoyancy of the suit.

The time required to don the suit is substantially greater than the advertised "less than a minute." Even under optimum conditions (prebriefed and on land) the average sailor requires nearly two minutes to don the suit (a pitching, rolling deck will increase this time). In-flight drills aboard an H-46 with eight passengers reveal the suit takes a minimum of three minutes to don. Considering the altitudes assigned and time to splash for logistic helicopters in the battle group environment, a procedure calling for the passengers to don the "Bayley" in the aircraft prior to ditching is highly inadvisable. Remember this is a dry suit. Water leaking into an improperly donned suit because the passenger is rushed or panicked while donning it negates its effectiveness.

Once the passenger has donned the suit, mobility becomes very limited. Because of its "one size fits all design," smaller passengers (5 feet 6 inches and smaller) will have to contend with a lot of excess arm and leg room. On the other hand larger passengers (6 feet 3 inches and taller) will have to be content with a very snug and confining fit. The suit limits the movements of any size passenger and greatly hinders tasks involving digital coordination. With the suit donned, buckling and unbuckling lap belts, grasping reference points, grasping and pulling release tape on emergency exits — in short, all manual tasks required for successful egress of a ditched helicopter — become more difficult and time-consuming.

There's one more potentially hazardous characteristic of the Bayley anti-exposure suit. If properly worn, it floats! Once donned, the Bayley suit traps air within its watertight seals and causes the person wearing it to become very buoyant. So buoyant in fact that egress from a sinking helicopter may be seriously impeded. This is an important fact to note when briefing passenger emergency egress.

Now you are armed with some practical knowledge of anti-exposure suit requirements and the characteristics of the Bayley suit. As a HAC, you can give a more thorough brief on the conduct of cold weather passenger transfers. Your brief should include:

→ Checking with your aircrewmen to ensure you are carry-

ing one anti-exposure suit for each passenger you are expected to carry.

→ Reminding your co-pilot you will be giving the transferring ship a heads-up prior to arrival. This call should include the requirement for passengers to don anti-exposure suits prior to being embarked and the number of anti-exposure suits the transferring ship will require.

→ Reminding your aircrewmen to be alert for any problems encountered by the passengers during hoisting and strapping is due to the reduced digital coordination caused by the suit.

→ Reminding your aircrewmen to thoroughly brief passengers on emergency egress procedures. Keep in mind helicopter noise makes verbal directions impractical and laminated ditching brief cards should be used. The brief should include information on suit buoyancy and movement restrictions.

→ Allowing ample time for passengers to don and remove the anti-exposure suits when planning overheads.

→ Reviewing all applicable squadron cold weather passenger transfer procedures.

The use of anti-exposure suits during cold weather operations is required for passengers and aircrew alike. The practical characteristics of the anti-exposure suits presently used for passengers create distinct problems both from an operational and a safety standpoint. As a HAC, it is up to you to enforce the requirements for anti-exposure suits.

When evaluating the cold weather operations portion of your squadron SOP, ensure NWP 42 and OPNAVINST 3710.7L requirements serve as guidelines for the use of anti-exposure suits. Considering the limited movement and dexterity and the natural buoyancy of the Bayley, limiting the number of passengers carried during cold weather to enhance egress is recommended.

It is important for operational commanders to realize the safety requirements and operational restrictions placed on passenger transfers during cold weather operations. In all cases cold weather passenger transfers should be a well planned, well briefed evolution. At no time during the transfer should there be a question in your mind or your crew member's mind as to what you can and cannot do. Bone up on your NATOPS, NWP 42 and OPNAVINST 3710.7L cold weather operations procedures. It's your job to look after your passengers safety and well-being. Have them suit up!

*Whether in zone or borderline, cold weather passenger transfers and flight operations are potentially deadly. Operations and helicopter direction center must limit such operations and keep administrative flights to a minimum. Life support equipment analysts at the Naval Safety Center, Norfolk, Va., advise that the Bayley suit is not used extensively and is not supported or funded by NAVAIR. It is a type commander-allowed, commercially procured off-the-shelf item. The Aircrew Survivability Enhancement Board and the Aircrew Survival Safety Board have accepted passenger anti-exposure protection as a high priority item. Development and testing for the optimum anti-exposure suit for passengers on VOD/COD aircraft is currently being conducted. — Ed.*

Lt. Vaughan is assigned to HC-5's sea component, NAS Guam.

# Trivial Pursuit, Strike Fighter Edition

... When he asks, "What's your game plan?" he's not kidding. . .

By Cdr. C.A. Langbehn

How long does it take a  
one-legged chimp to kick  
the seeds out of a dill  
pickle?



How many teeth  
does the adult  
male mosquito  
have?

What was the name  
of the Wright  
Brothers' tailor's dog?

HOW do you prepare your squadron for exams on aircraft systems, CV procedures, recognition and air-wing doctrine without endless AOMS and lectures? How can you review limitations, procedures and instrument flight rules, and have fun doing it? Try combining the natural competitive spirit of aviators with one of the most popular games in the country and you have . . . "Trivial Pursuit, Strike Fighter Edition."

In case you haven't heard, "Trivial Pursuit" is a game played on a wheel-shaped game board with six spokes radiating from the center. Players roll a die and move around the perimeter of the wheel answering questions from categories determined by one of the most popular games in the country and you have . . . "Trivial Pursuit, Strike Fighter Edition." A player can be either an individual or a team. If the question is answered correctly, the player continues his turn. If he answers correctly while on a space that intersects one of the spokes of the wheel, he is awarded the "piece of pie" for that color. When the player has accumulated all six pieces of pie, he moves up one of the spokes and must land exactly on the center. When he does, he must answer a question from a category chosen by the other players. If he answers correctly, he wins the game. The nature of the basic game has spawned a number of other editions, from "Baby Boomers" to "Silver Screen."

We created our own game using 3-by-5-inch index cards with the questions on the front and the answers on the back. Instead of putting questions from all six categories on one card, we put one question on each card and arranged them by category in a long, wooden file box. These are the categories we have created so far.

General NATOPS  
Weapons and Tactics  
DDI Cautions  
CV/Airwing Procedures  
Emergencies/Limitations  
Soviet Ships  
Instrument Flight Rules  
Soviet Aircraft

Our game box has more than the required six categories, so before play starts the players choose six categories and move them into the color-coded area of the box. A good rule is for NATOPS and Emergency Procedures to always be in the game, while the other four categories can be chosen. While some of our categories are unique to the F/A-18, most are not and can be used by any squadron. To keep the game interesting, we keep the Trivial Pursuit box in the ready room where anyone can add questions to the game. They just write the question on one side of a 3-by-5 card, the answer on the other and insert the card under the appropriate category. The basic rules of Trivial Pursuit apply, but two "fleet rules" have been added.

- A question can be declared "irrelevant" by a majority of the players and discarded.

- The answer on a card can be "challenged." The challenging player must prove his answer correct within a reasonable period of time. If he does, he is awarded the piece of pie in that category, his turn continues and the card is immediately changed to reflect the correct answer. If he is wrong, he loses a piece of pie of his opponents' choice.

The first rule keeps the game from bogging down with ridiculous questions like "How many concentric rings on the coolie cap trim button?" After all, this is Trivial Pursuit not Trivial Obsession. The second rule keeps the game updated as NATOPS changes occur. *Keep those references handy!*

Questions on combatants and recognition are taken from "Jane's" and other unclassified sources to keep the game unclassified. Old hands and the nuggets can compete on an equal footing and it puts the fun back into reviewing systems details and procedures that are important but sometimes neglected. Teams can be individuals, tactical divisions, JOs vs. Heavies or any other group you chose. The game is an excellent way to review important facts while keeping morale high during extended line periods.

The game is easy and cheap to create, fun to play and can raise system knowledge within the squadron to an all-time high. Good luck. ◀

Cdr. Langbehn is the commanding officer of VFA-113, the first Navy fleet F/A-18A squadron.



# Pieces Of A Puzzle

By ADCS "Red Dogg" Moss

WELL, the excitement is over. The "Angel" has recovered the downed A-7 pilot whose engine flamed out due to unknown causes. His forced ejection from his trusty Corsair took place about 150 yards off the starboard bow. Pilot condition: alive and well, in with the medics for what will be a routine physical exam and very grateful for his DWEST training. Even though this was his first ejection, and naturally a traumatic experience, the positive training he received at the local FASO showed up in a near textbook ejection and helo recovery. All's well that ends well, right? Well maybe. . .

What about his aircraft? It probably sank . . . wrong answer. The aircraft impacted the water right wing down with a slight nose down attitude at about 130 knots. After the salt spray cleared, there were virtually hundreds of pieces of flotsam, which drifted by as the ship steamed past.

Sure there will be a mishap investigation board, the decision of which may or may not be conclusive. Due to the aircraft being lost at sea, there will be a certain amount of speculation involved in the board's decision as to the hows and whys of this mishap. The word "speculation" jumps right into the craw of every mishap investigation board member. They just spent hundreds of hours doing interviews and reviewing the reasons this accident occurred and, after all this, have drawn up their conclusions on recommendations on how to prevent similar situations from occurring. Then to have all this referred to as "speculation"?

Well, what the heck. We did the best we could do with what we had. The pilot was rescued; he'll fly again. The aircraft was lost due to possible FOD. Possible FOD. Never actually proven, just speculation. Why? Because the aircraft was never recovered, lack of firm, hard evidence. No pieces to put the puzzle together. But wait, what about the debris that went by the starboard side immediately after the accident? There were hundreds of pieces of the puzzle that could have been recovered and could have proven invaluable to the mishap board. Items that would have been a great assist to any investigation team.

Of course, you were busy saving the pilot's life and ensuring his well-being. Of course, the accident was close-in and very little time could be expended in flotsam recovery due to the continuation of flight operations. Of course . . . but look at the valuable information that could have been gleaned from the recovery of these items. All ships have at least one asset that could have been employed to gather those pieces of the puzzle so highly desired by the mishap board. How about letting the small boy behind you pick up the pieces? How about the motor whaleboat being utilized for recovery of the pieces? How about launching one of the deployed squadron helos for either recovery or, at least, identification of the wreckage.

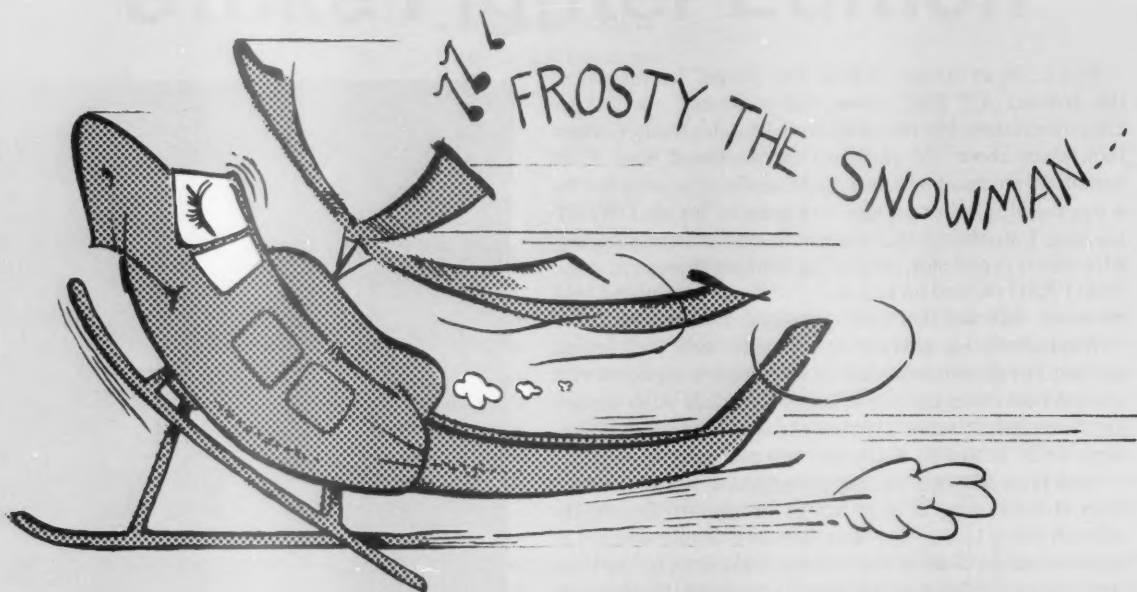


Size, color scheme, any written numbers or words, wreckage proximity to the impact areas; important factors all.

By utilizing your available assets for recovery or identification of aircraft pieces, you can make invaluable contributions to the mishap board. Even those photos you took with your latest ship's store purchase are of enormous value. The key is "Be Alert." Rescue the pilot, but think further than the rescue. Let's prevent speculation with good solid evidence. Recover those pieces to the puzzle.

*NOTE: OPNAVINST 3750.6N para 609A. (2) states "all reasonable effort will be made to retrieve all items associated with the aircraft and crew members." NWP-42F para 2.7.2.1 states "following the recovery of personnel aircraft/debris will be collected."*

ADCS Moss has been a search and rescue crewman since 1968. He is a designated SAR instructor and has been the co-chairman of the CNO SAR Model Manager Island SAR subcommittee. He is currently assigned to HC-5, NAS Agana, Guam. ◀



### Ice Skating Helo

While standing on a snow-covered, ice-packed slippery flight line, waiting for a T-39 to taxi out, I saw what I thought you only read about in books or hear about in safety lectures. It was a UH-1E helicopter settling down on the flight line after coming from the taxiway. It slid 100 feet to the hangar, between a KC-130F and a T-39 which was turning while waiting to taxi.

The UH-1E had plenty of flight line to settle down on and stay put. But, no, it slid between the nose of a parked KC-

130F which had 13K of JP-5 fuel on it, and the rear of the T-39. All the while the UH-1E rotors, both top and rear, were still turning.

Whether or not it is standard operating procedure for a UH-1E to slide to a complete stop, I don't know. I still think that with the weather as it was and other aircraft in the area, there was plenty of flight line for it to settle down on and stay put. I know he probably wanted to hurry and get inside the hangar, but what about SAFETY?

Antiskidmouse

*According to analysts in the Rotary*

*Wing Branch, Naval Safety Center, the point is well taken. Depending on clearance between the aircraft, shutdown and towing of the helo would have been preferable. However, if sufficient clearance is available, sliding the helo on snow/ice can be a safe way to taxi. Lifting into a hover can produce "white out" by blowing snow. Also, ground taxi reduces rotor wash, thereby decreasing the risk of FOD and wind-related damage to the other aircraft. The Army regularly uses the sliding technique with its skid-configured helicopters.*

### Let Anymouse Know.

We encourage you to write Anymouse whenever you see "a mishap about to happen." If you know of a hair-raising situation in the air or on the deck, let Anymouse know about it. You may help someone else avoid an unsafe incident.

Anymouse is a unique department in Approach where no names are used. All information is anonymous. In fact, Anymouse was born three decades ago when someone couldn't spell "anonymous" and signed his letter "anymouse." Thus, a mouse wearing flight gear has become a world-wide naval aviation safety symbol.

Over the years we have found it is often more prudent and speedy to report unsafe situations anonymously. Keep in mind, though, that Anymouse is not interested in personality conflicts or non-constructive criticism of individuals. All views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

For your convenience, postpaid Anymouse mailing forms are available in most readyrooms and from most flight safety officers. Use of the form is not mandatory, though. Just jot down your thoughts and mail to Anymouse, Approach Magazine, Naval Safety Center, NAS Norfolk, VA 23511-5796.

# ANYMOUSE

## Uniform FOD Problem

A new Marine Corps uniform regulation has been passed, I believe, without regard to aviation safety or aviation personnel. We are now (again) required to wear metal or plastic rank insignia on our covers. Having prior experience with this, I can emphatically state that someone will shove his or her cover in a pocket and cause the insignia or pin clasps to fall on the mat, line, hangar deck, or in an intake.

This problem is analogous to the FOD caused by buttons popping off work uniforms and should be addressed emphatically and persistently. I am amazed that the safety staff did not shed light on this subject by adding a paragraph regarding the FOD safety hazard.

Maybe, just maybe, I have been in QA too long. . .

Rankledmouse

*Safety Center analysts point out that covers are not to be worn while working on aircraft, past the hangar doors or anywhere in between. One noted he had not heard of an engine being FODed by a collar device or a rank insignia. On the other hand, another said that if we want "zero FOD," then we must do everything to reduce the element of chance. "We either support a complete system of prevention, education and positive action or we accept the risk or loss associated with a partial system," he said.*

## School Tour Safety

I was departing an air station when I observed a squadron conducting a tour for some local school children. We have also done this with our squadron. But the main difference here, I noticed, was that the children were touring the flight line with APUs running, engines turning up and aircraft taxiing.

In addition to the noise hazards, the

possibility exists that one of the children could get separated from the group and wind up in a prop arc or near an intake. The children weren't provided with any ear protection either — they all had their fingers in their ears!

When my squadron conducts similar tours, aircraft are parked in the hangar using ground power. We have never had ANY injury or problem with visitors at our squadron.

Protectthekidsmouse

## A Good Program Gone Berserk

FOD has been an expensive problem both in terms of lives and property since the days of the Wright Brothers. With the advent of jet engines the problem increased exponentially. We have found through years of experience that anything placed on the flight line smaller than a start-cart can be ingested or blown often with catastrophic results.

On a bright Monday morning a new policy of conducting an all-hands FOD walkdown of the flight line and hangar spaces was initiated. I was one of the last to arrive and saw that the squadron was already formed into one long line of about 120 to 140 personnel. As I approached the formation with the QA chief, another chief in charge of the formation signaled for the FOD walk to begin.

All would have been fine except that three of our twin-engined aircraft were turning and burning, obviously completing taxi checks and awaiting clearances. The QA chief and I looked at each other and as loudly as possible screamed for the formation to stop. It was, of course, impossible for us to be heard over six roaring engines. The chief in charge of the formation saw our astonished expressions and told us that he did not like it either, but that the CO had told him to "... get on with it ..."

The formation split into two groups and was sent in front of and behind those roaring engines. This procedure continued when the next two turning aircraft were encountered.

I really do not think I need to explain the potential for disaster that existed on our flight line that day. My astonishment was great, the aircrew in the subject aircraft were amazed, but imagine what must have been going through the minds of the junior Marines that day.

Here was a good program gone berserk. A program designed to prevent foreign object damage due to nuts, bolts and rocks should not subject personnel to physical danger. I know that someone, myself included, should have stopped the formation regardless of inciting the CO's wrath, but his reputation for not accepting the slightest affront to his authority was well known. A lesson was learned by most of the Marines on that flight line that day; Never again.

Sublimetoridiculousmouse

## Tool Box FOD

The rubber bumper pads on metal tool boxes are not attached securely. Due to their black color and shape, they are extremely hard to locate when they are separated from the box during normal use on the flight line or flight deck, especially at night. One of these bumpers was found on the flight line by QA during a maintenance turn evolution after a FOD walkdown of the area had been completed.

It is recommended that all 12 rubber grommet type bumpers be removed from this type of tool box. Protection of the hinge area could be accomplished by installing bolts with self-locking nuts in the four bottom holes with bolt heads out. Non-sparking aluminum or brass bolts would be preferable.

AntiFODmouse





... The A-6 was in its final seconds to the target at 400 KIAS when suddenly the aircrew felt a severe "thump" ...

# Night Skimmer

By Bud Baer

IT was a two-plane A-6E bombing mission to the island target practice range off the coast of NAS Far East. The wingman was scheduled to fly with the squadron commanding officer since his regular B/N was medically grounded. However, the CO had a last minute schedule conflict and another B/N was assigned to ride shotgun.

The pilots of both Intruders were on their initial tours, having served on board for less than a year. They were qualified and designated formation leaders. Both B/Ns were nearing completion of their first tours and were qualified mission commanders and section leaders.

During the flight briefing they decided to fly the mission as singles rather than in formation. Although they didn't talk about a specific run-in altitude, the squadron's SOP minimum altitude at night was 500 feet MSL.

Both A-6s went through preflight, man-up, engine start and launched just before sunset. They climbed to 5,000 feet MSL but then descended to 200-400 feet MSL during the remaining daylight en route to the target area, approximately 145 nm away. On the way at this low altitude, chaff/flares were dispensed while they performed mild maneuvering.

Before reaching the target area, they climbed to gain radio contact with NAS Far East range control (a remote facility located at the base and not at the target). Failing to make contact, they continued climbing to 15,000 feet and contacted NAS Far East approach to advise they would be working the range. The current altimeter setting was received and set. They descended to 2,000 feet MSL and approached the target from the northwest, intercepting the 12-mile arc, arcing south to intercept the 070-degree run-in heading. During this run the wing pilot set his radar altimeter at 1,000 feet AGL.

While on the 12-mile arc, the wingman had contact with the first A-6 which had just made a target clearing pass and had reported a small boat in the area about a mile short of the target along the run-in heading.

By the time the Intruder approached the target, it was hazy and dark with no visible horizon. On the run-in heading, several mountain ridgelines were visible against the night sky. The pilot began his turn into the target. When completed, he descended at 1,500 to 2,000 fpm, resetting the radar altimeter to 450 feet AGL. They leveled off at 500 feet for the approach

to the target. The B/N's attention was focused on the radar and position of the target.

Established at 500 feet inbound, the pilot noted aircraft heading to be about 100 degrees. He then turned starboard to intercept the pre-briefed run-in heading of 70 degrees. This initial correction was followed by a port turn to center steering. A computer optical placement (COP) check was performed during the run-in. The B/N identified the target on radar, shifted to an expanded display and continued attempts to locate the small surface contact reported earlier by the lead aircraft.

The A-6 was in its final seconds to the target at 400 KIAS when suddenly the aircrew felt a severe "thump." The pilot instinctively began a shallow climb, retarding the throttles to 90 percent, and remarked "It sure felt like we hit something. Maybe a bird."

"It didn't feel like a bird to me," the B/N responded. "It seemed to slow us up too much. I noticed a strong decelerative-type force at the moment it happened, but I'm not sure what it was. I am sure that I'm glad we're still flying."

*What actually happened was that the A-6 had glanced off the water.*

They contacted the other Intruder in the area to come in close to look for any damage. A cursory inspection revealed none so the two aircraft separated for return flights to the carrier.

Performing a slow speed controllability check, though, the pilot learned his landing gear wouldn't lower and gear handle recycling had no effect. Activation of the flaps/slats handle resulted in full down slats but no flaps. The other aircraft returned for a close examination, and the crew spotted damage to the engine bay doors.

At the direction of the carrier air traffic control center, the companion plane was detached to marshal, and another aircraft (with the squadron executive officer) was directed to examine the damaged Intruder. They saw that the centerline drop-tank was missing and that the underside of the aircraft had been damaged.

Both aircraft were diverted to nearby NAS Far East. The XO's plane closely monitored the stricken A-6's landing



Following water impact, *crew coordination rapidly improved*. The pilot and B/N went through all the emergency steps and did *the right things* to get the aircraft back safely. Had this aircrew coordination existed before the mishap, the A-6 might not have gotten wet.

procedures which included a successful emergency landing gear extension. After some tense moments leading to final approach, the Intruder made a safe "slat/no flap" field arrestment.

Post-flight inspection by base maintenance personnel and the two aircrews confirmed, of course, that they lost their centerline drop-tank, and there was extensive damage to the centerline pylon and the mid and aft engine bay doors. Parts recovered in the landing area and parts wedged in the engine compartment were identified as portions of the missing drop-tank. The drop-tank on station 4, the under surfaces of the horizontal stabilizers and the leading edge of the stabilizer all had minor damage. Subsequent technical analysis showed saltwater residue in the damaged parts and area.

The radar altimeter was tested on the CV deck before the flight and was operating normally. After the mishap, components of the radar altimeter system were removed and bench-checked at the base's aircraft intermediate maintenance department with no discrepancies found.

"We usually don't get to interview the crew of such a mishap," the commanding officer later observed. "We are lucky to have them alive to help reconstruct the chain of events and to pass on their vivid, first-hand lessons from this mishap. This is a classic mishap associated with the hazards of all-weather, air-to-ground attack missions. Established directives and crew procedures, standard operating procedures, NATOPS and training requirements are all present. Yet, we still live and die by human error."

How could the aircrew get into this predicament? Following a long overwater flight that began in daylight and ended in darkness, they may well have pressed beyond their limits. Maybe there was a temptation to "accomplish the mission" and "not look bad," sometimes greater in more junior, less experienced crews.

On the approach to the target, their scans broke down. The B/N became preoccupied with target acquisition. Maybe events occurred too quickly for the pilot. He initiated a sharp correction to run-in heading. He made a COP check, perhaps from habit since little information could be gained from an unlit island target. Seeing the outlines of the mountains against the night sky might have given them a false sense of security in terms of visible horizon.

The last known altitude recalled by the B/N before water contact was 1,000 feet MSL during the descent. This would have been at least a minute before the A-6 turned in and corrected to the run-in heading. Neither the pilot nor the B/N confirmed the level-off altitude before the "thump in the dark." At no time during the approach did the pilot and B/N discuss aircraft altitude parameters. Both pilot and B/N were apparently preoccupied with their respective portion of the attack problem, to the exclusion of basic crew coordination and situational awareness.

Following water impact, however, *crew coordination rapidly improved*. The pilot and the B/N went through all of the emergency steps and did *the right things* to get the aircraft back safely. Had this aircrew coordination existed before the mishap, the A-6 might not have gotten wet.

Obviously, a most important safety lesson learned from this incident is the necessity for continuing dialogue and conversation in the cockpit. Flight crew *coordination* in all flight regimes is important and on low visibility, low altitude night evolutions, such as that flown by the A-6, it is vital that the crew keep in close touch.

Although the "water thumper" mishap resulted in the safe return of the aircrew and the aircraft, the Naval Safety Center at Norfolk, Va., was particularly interested because a number of Class "A" mishaps in A-6s have occurred under similar circumstances, according to Lcdr. R.R. Ayres, A-6 analyst in the Center's Aircraft Operations Division.

"The crew of this A-6 obviously didn't recognize a dangerous situation developing," Ayres said. "The pilot experienced a loss of situational awareness. The same can be said of the B/N, whose scan should include a reliable source of altitude as well as the weapon systems he is operating. This is extremely important during descent to level off in the target approach. Focusing on one and disregarding the other is a breakdown in scan and can lead to a loss of situational awareness."

"The aircrew was extremely fortunate. Their experience has given the A-6 community appreciation of the consequences of not recognizing limitations that affect all of us. Mature, professional aircrews must constantly be aware of their limitations and respond accordingly."

Bud Baer is a staff writer for Approach.

When you think of it, common sense these days is not so common.

Ace L.

# Light Planes Aren't the Same

By Cdr. Philip F. Swain



... The next 15 minutes were really frantic. As I was considering landing on a race track or the freeway, I sighted the divert airport ...

I was "super qualified" to fly an aircraft, especially a teeny weeny. With a couple thousand hours of P-3 time and about 150 hours of general aviation time logged over the last 10 years, I thought I really knew the ropes. After all, while stationed in the Philippines, I'd flown the flying club Cessna 172s to Baguio. So here I was, a red hot VP FRS instructor ready to go flying in a light twin, a Beech "Travel Air." My wife and I, our 3-year-old daughter and another couple had taken this same airplane to Oregon a couple of months previously, so I was current (a grand total of 10 hours in type) and ready to fly the wife, dog and kid to Southern California over a three-day weekend. The flight down was uneventful, although I noticed a little "purple" under my fingernails as we climbed to 12,500 feet to comply with the ARTCC revised routing which took us over some pretty high ridges between the bay area and Southern California.

After a fun weekend, we all (my family and all the relatives I wanted to impress with our "own" airplane) went out to the local airport to preflight for the return trip. I had set a deadline for takeoff (completely self-generated — we had no real rush). Flight planning took a bit longer than I antici-

pated and that, together with the heat on the ramp (which caused the audience to complain) and my self-generated deadline, precipitated a rushed aircraft preflight. After hurried goodbyes, we took off into the LA murk. Passing 5,000 feet, with my hands full navigating, talking to center and trying to get over the agitation of a late, rushed takeoff, I began setting up for the en-route phase of flight, securing fuel boost pumps, switching fuel tanks to conserve gas and getting the engines trimmed up just right for optimum cruise.

Shortly after switching fuel tanks, the left engine quit! The old Beech was pretty heavily loaded, and on this hot day, it wouldn't maintain altitude. As we started down into the dense smog, I declared an emergency and was immediately switched to another frequency. While trying to fly the vector I got from center, get the new frequency in and look for a suitable airport on my chart, I was also trying to remember the restart procedures. I was frantically searching for the checklist and trying to fly, to talk, to calm the family and to see the airport the center was vectoring us to.

The next 15 minutes were really frantic. As I was considering landing on a race track or the freeway, I sighted the divert airport. Actually, my wife saw it first. Since I was passing 1,000 feet, I didn't think I could make it to the duty runway so I opted for a downwind landing. I mistakenly used P-3-type landing speed which is probably the reason the port tire blew on touchdown. Or had I missed a bad tire on my hasty preflight? Well, with the port tire gone, directional control was gone and we departed the runway. I had the presence of mind to feather both props and secure everything (gas, battery and mags off) as we scooted across the grass, finally becoming "arrested" by a cyclone fence.

No one was hurt, and after some very minor repairs to the airplane, I flew it home a couple of days later. The family flew home commercially. The flying club had \$500 deductible insurance, so, other than damaged pride and a much thinner bank account, I learned a very important lesson fairly painlessly. By the way, the reason the engine quit, as near as I can now figure out, is because during the climbout and in switching fuel tanks, I inadvertently shut off fuel to the left engine.

I share all of this with you so that perhaps others may benefit from my errors. The bottom line is that currency in our Navy aircraft doesn't necessarily translate to proficiency in the local flying club's aircraft. However, basic headwork and sound procedures for safety learned as a naval aviator do translate. Any Navy pilot should be able to pick out many SOPs that were violated in the above paragraphs. The links in the chain leading to the accident are obvious. ◀

Cdr. Swain is the XO of Patrol Squadron 46.

# Remember the 4<sup>th</sup> Priority

20

By Ltjg. Eric Ellefsen

A flight of two EA-6Bs made its way across the country with a final destination of NAS Southeast. The weather had been clear, temperatures mild and air traffic light. These conditions remained unchanged from Washington state to Ohio. But as the flight approached the eastern seaboard that evening, the traffic became heavier, the radio comm picked up and a cold front loomed over the intended point of landing.

An en-route descent to the field would have enabled the flight to navigate under the weather up ahead. The center controller promptly denied the request and began issuing a stream of radar vectors. Heading into IFR conditions, the wingman tightened up the formation. Things began to speed up inside the wing aircraft; the pilot fought to maintain sight of the lead as his NFO quickened up his instrument scan. At about 30 miles out, they initiated the descent checklist: "Weather . . . (current conditions were discussed) . . . defog . . . let's get it in a few minutes . . . pitot heat . . . on . . . anti-ice . . . on . . ."

At 4,000 feet, the flight broke through the bottom of the layer and the city came into view. Both crews strained to identify the field among the network of lights ahead. With the approach controller's help, lead finally spotted the runway environment and descended the flight to break altitude.

As the wing aircraft reached 1,500 feet, that neglected defog thumbwheel came back to haunt the crew. As the aircraft approached the numbers, the warm, moist air near the ground formed a layer on the cold-soaked windscreen. In the aft cockpit, the ECMOs heard a frantic call for defog. The pilot went into the break gingerly, and on downwind said, "Quick, get me a rag to wipe off the glass." Not having one handy but using creative quickness, the NFO handed over his cloth nav bag (full of pubs and charts!).

Fortunately, at the 90, the full-blast defog took effect and cleared the windscreen well enough to allow an uneventful landing.

In the training command, anything less than full adherence to checklists yields a "below average" at best. But here, it resulted in nothing more than a "sea story" over a beer at the O Club ("... and then he handed me his nav bag . . ."). Have fleet aviators lost sight of the value of fundamentals? We learned a number of things for this incident, among which were:

(1) Descent checklists can and should be initiated at 100 miles from the destination to preclude hurrying overhead the field. "Rushing" and "fumbling" are exciting to watch during a football game, but no one needs that kind of excitement in the cockpit.

(2) If the crew decides to skip a checklist item momentarily, for any reason, the reader should verbalize this fact to the rest of the crew, such as, "Descent checklist complete, with the exception of . . ." As an aid to remembering the item in question, sitting on one's hand has been known to be effective, though constricting.

(3) Approaching any airfield far from home is always less



than routine, no matter how many times you've been there. This is just one more reason to give a full field brief to the pilot, take care of checklists long in advance and widen the scan to include switch positions as well as flight instruments.

In this incident, the two crew members in the back failed to have their checklists out as a cross-check. At any time during the descent, they could have reminded the pilot and navigator to switch on the defog and thereby eliminate that story at the club.

When we all entered this strange new world of aviation, the instructors pounded home the four basic priorities to safe flight: **aviate, navigate, communicate, checklists**. Checklists shouldn't be treated with any less respect just because they're fourth on the list. ◀

Ltjg. Ellefsen flies EA-6Bs with the VAQ-138 Yellowjackets deployed on USS *Nimitz* (CVN 68).



... Alas, one man with but 10 fingers cannot solely ensure the cleanliness of 4.5 acres of blacktop which includes approximately 4,486 traps known as padeyes. . .

# The Air Wing Safety Duty Officer vs. Battle Flex Deck FOD

By LCDR. Steve Bulwicz

IN the cyclic ops era of naval aviation, a herd of war machines was catapulted in the air, busily amused themselves for a 1+ 45 minute time block and then returned. Between the arrestments and launches, there once was a one-hour silence window where aircraft were refueled, respotted, revitalized, remanned and finally rekindled. There was even plenty of time to look around and peacefully harvest FOD from the flight deck.

Times have changed. We have rediscovered and reincorpo-

rated battle flex deck (BFD) operations, whereupon carrier aircraft are continuously launching and recovering every 45 minutes. The silence window is gone. The FOD problem is more complicated.

... Enter the air wing safety duty officer\* — a man entrusted by CAG to take charge of seeing that the persnickety stuff left behind by the people of the flight deck doesn't contaminate our "air only" suck and blow engines. This man they abbreviate as AWSDO has a vested interest. If one of his

\*Air Wing Safety Duty Officer — Squadron safety department heads put on an AWSDO of the day watch bill by the CVW safety officer. Occasionally referred to as the FOD officer of the day.







squadron's aircraft should become a victim of FOD, he shall write the Class C Mishap Investigation Report, a notorious paper-work nightmare.

Alas, one man with but 10 fingers cannot solely ensure the cleanliness of 4.5 acres of blacktop, which includes approximately 4,486 FOD traps known as padeyes. For the BFD FOD problem, he needs something that can overwhelm and control the ants blocking the elephant's progress.

**Silver Bullet No. 1 — A FOD Tiger Team.** A group of 16 or so young TAD individuals plus one rotational air wing CPO in charge. This is a round-the-clock anti-FOD squad that operates and maintains the vacuum equipment for general flight deck cleaning. In addition to cleaning padeyes and jet blast deflector (JBD) wells, they are on call for any immediate action FOD problem.

**Silver Bullet No. 2 — His squadron QA work center.** These guys are his FOD analyzers. He can determine from their reports where most of the FOD originates and direct some high level attention to those areas.

**Silver Bullet No. 3 — Cooperation.** This item is required of the following personnel in order to practice FODmanship on the flight deck:

- The ship's captain
- The air boss
- The handler

**Silver Bullet No. 4 — Support.** The CAG has to be behind him 110 percent, even to the point of canceling a launch in order to walk FOD. The CARGRU and CV CO also have a vested interest called battle readiness. With these three behind him, success is virtually assured.

**Silver Bullet No. 5 — A Final Report Card.** An informal memo from the AWSDO up the chain of command publicizing the day's events. With this blaster, he can praise the highlights and spotlight the low points as a means for corrective action.

Now that this guy's got the right loadout for the job, here

are some abridged details of his mission. For the AWSDO, here's your "How To Do It" encyclopedia:

- The passdown log and flight deck vest can be located in the CV Safety Office. While you're there, see if the big safety officer has any advice for you in your daily duties. Besides destroying FOD, you're still performing a vital role as policeman for any unsafe practices you detect. He can point out the current trouble spots.

- Head on up to flight deck control for liaison with your Tiger Team CPO. See what's been done with the vacuums and if there have been any problems. They normally should have vacuumed every padeye and JBD well before the first day of ops and no less than 75 percent of them during sustained ops.

- Check the daily air plan and make sure that the scheduled major FOD walkdowns go as published. This requires SB No. 3 — Cooperation. If that doesn't work, proceed to SB No. 4 — Support. Be sure you are present to lead the masses. Don't forget to look under the carpet for FOD swept under . . . ask the handler to raise the JBDs, and the air boss to raise the barricade stanchions.

- **Combat FOD Walkdowns.** Ensure that one of these mini-walkdowns of the landing area is performed after *each* recovery. During BFD ops, there may be several or more hours between scheduled major FOD walkdowns. Unfortunately, during the aircraft arrestment phase, various type fasteners depart the airframe at an almost predictable rate. If you don't make a point to pick them up immediately after each recovery, you're sanctioning a game of Russian roulette with jet engines.

- **Night FOD Walkdowns.** These are also a must and, amazingly enough, every man walking FOD needs a flashlight to do the job. If you can get the bridge to turn up the flight deck lighting, all the better.

- **Hangar Deck Walkdowns.** Trash from down under will work its way up to the flight deck the easy way, via the elevators. Be sure that the scheduled walkdowns are conducted and, if necessary, request an encore. While you're down there, check for FOD bags on the aircraft.

- **Gouge for the next guy.** A well documented report card at the end of ops will highlight the areas that every one on the FOD force needs to reevaluate. Continuous pressure eventually works to solve many FOD-related problems. Be knittickin'.

In summary:

The AWSDO concept is one part of Air Wing Fourteen's major battle plan to shoot the BFD FOD problem in the face. For those air wings who choose to add this approach, your expectations should be tempered with there being a thousand facets to a successful CV FOD program, and they all need simultaneous unrelenting attention. The AWSDO can direct one of the largest teams smack dab in the middle of the flight and consistently win if you keep him resupplied with what he needs to make it work. ◀

Lcdr. Bulwicz is currently VAQ-139's safety officer flying EA-6Bs aboard USS *Constellation*. Tours included VA-145 as an A-6 pilot, VT-86 as a TA-4 flight instructor and VA-304 as an A-7 pilot.



# He Sleeps w



# Swing with It Under His Pillow

## Ideas on studying the NATOPS Manual: Is it the "Big Blue Sleeping Pill" or the guide to fighting with your war machine?

By Cdr. Richard H. Porritt, Jr.

EVER notice how some flyers seem to always have NATOPS down cold? Not a big sweat during the few days prior to the annual check. Always up on the step. Always quick with the right answer, year-round.

You can bet that it's usually because they have spent plenty of time working on it with lots of attention to detail. But along with the hard work, the NATOPS superstars have found their own individual ways to make the time spent on NATOPS count most effectively for them. This varies with the individual. We all learn in different ways or in a combination of ways. We have five senses and a number of means of reinforcing those critical NATOPS facts, procedures and numbers regarding our aircraft.

See it, say it, read it, repeat it, talk about it, touch it, list it, write it, organize it, use foldouts to visualize it. What follows is some cockpit crossfeed on the various ways fellow flyers have found to learn, study and reinforce NATOPS procedures and aircraft systems facts. Maybe some of them or a combination of them will work for you.

- "I sleep with it under my pillow" — former Navy flyer, now a vacuum cleaner salesman.

- "I sit in my arm chair and pretend I am at the controls. I reach out for the switches, circuit breakers, throttles and stick, etc., as I review the procedures." — former OPS officer, now CO, combat veteran, shot down, successfully rescued.

- "Repetition, that's the key. But I make it strategic repetition to reinforce what I've learned. Memory experts say learn it while you're fresh in the morning, review it before you go to sleep. I refresh what I've learned within eight hours, then again within three days, then again within a week or two." — psychology major turned frequent flyer.

- "I need to get in the trainer often. My learning curve goes way up." — lots of us have said this.

- "I mark up my NATOPS Manual. I highlight, underline, make notes in the margins and on diagrams and foldouts. It's not like a library book. It's mine to keep and use." — former OPS O and one of my first pilots.

- "I take the manual with me to the head. I always need something to read in the head, so I just read a section of NATOPS while I sit." — my present crew pilot.

- Cautions, warnings and notes — that's the key. If you know them, you have a handle on about 80 percent of the manual." — many fellow flyers. There are 95 warnings, 114 cautions and 283 notes in our manual. I had one roommate who took a three-section notebook and wrote out *all* the warnings in one section, cautions in another, notes in the other. He did about 5 to 6 at a time and by the end of a year he would have them all complete. Throughout the year, he had a means of rapid review and a study guide. He knew them cold. The writing helped reinforce it. Writing out EPs is an idea as well. One former squadron mate said that's the only way he could learn the immediate action items . . . to *write* them out.

- "Chapter 5 — the Emergency Procedures section — I memorize it — the entire chapter, as well as the immediate action items." — a former airline pilot who returned to active duty.

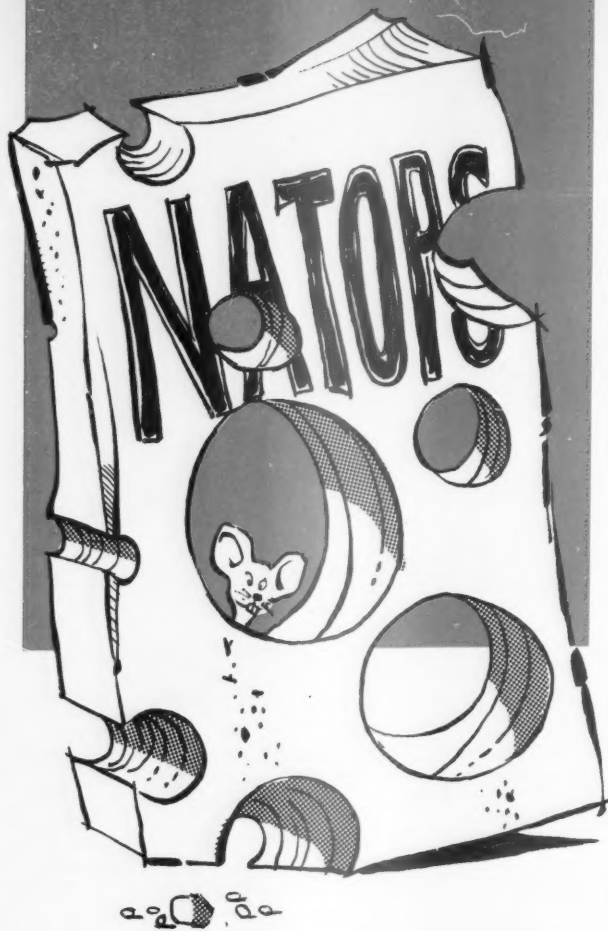
- "Keep it fun, challenging, a game; keep it competitive. Use a NATOPS greenie board. Public humiliation may be negative reinforcement, but so is an accident." — safety officer.

- "I try hard to concentrate. I stick in ear plugs and try to block out everything else so that the time I use studying is maximized without external distractions." — pilot, former OPS O.

- "I study by systems, almost like HEFOE, but many more. I read the section on air conditioning/ bleed air and learn all I

25





The swiss-cheese technique.

can about it. Next I go to hydraulics, engines, electrical, computer, instruments, fuel, ACLS, navigational gear, etc. When I'm finished, I start all over again." — former know-it-all instructor.

- "Flash cards work for me. Two-sided, the way we used to learn math facts in second grade. I can mix and match and quiz myself." — one of my first crew pilots.

- "Chapter 4 on Flight Characteristics, Spins, PSG. Read it 17 times." — former airline pilot returned to active duty.

- "Chapter 3 — Normal Procedures — I read it and review it often." — my former roommate again. Normal procedures? But we do them *all the time*. That's true. But on preflight, what are you *really* looking for in the nose wheel well? Also, what are some of those "normal procedures" that have warnings, cautions, notes and numbers associated? The "warnings" under "normal procedures" section still can cause "injury or death" if not heeded.

- "I make lists. On one sheet, I list all the airspeeds I can find in the manual from lowest to highest, and why they are significant. Then, on separate sheets, I do the same for fuels, gross weights, AOA's, time limits, G-limits, RPMs, angle of bank/attitude limits of equipment. I try to group things. It's a good reference and learning tool. Excellent for rapid review. The writing and researching of the lists are *active* ways of studying." — from a former dean's list student, now superior naval flight officer.

- "The three-times rule — I study the same thing three different times during the same day. It usually stays with me for a real long time." — civilian memory expert.

- "MNEMONICS or other devices — some things I just can't seem to remember. I need a crutch, e.g., FACE Wash or "23 rats speeding and spinning in flight" or other nonsense ways of recalling the items on the forward/auxiliary heat exchanger or the items powered by the primary combined hydraulic system." — from a former NATOPS O.

- "I answer and review all the questions in the NATOPS question bank periodically. I do four to five a day. I write answers or page references in the margins. Lots of the open and closed book exam questions come from the question bank." — my former roommate again.

- "I look at the NATOPS questions of the day on the daily flight schedule. I try to thoroughly answer it on my own. Then I refer to the PCL or NFM to cover any missing details or additional considerations." — from a good friend.

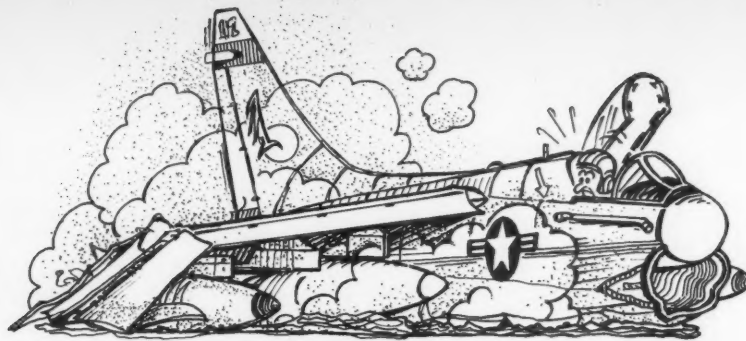
- "Overwhelming? Try the swiss-cheese technique. Take the manual. Analyze it. Poke some holes in it. Break it into bite-size pieces and work on it from there." — civilian time management consultant.

- "If the opportunity presents itself (and sometimes I have to create the opportunity) I have always found that if I can record it while reading it during study, and then play back the tapes at various times, it helps trip memory triggers when topics arise." — some guy (a non-flyer) who saw an opportunity to give me an input while typing this article. (Author concurs and likes the idea!)

Well, there you have it. More than you ever wanted to know about studying NATOPS. There are probably lots of other ideas out there. Safety officers, NATOPS officers, bring this up for discussion at an AOM. It will be valuable crossfeed for the nuggets and the old hands alike. You can probably come up with many more ideas. Variety is the spice of life. Try something different. Active learning. Set some goals using the above ideas. Set up a study plan and stick to it. Spend time. Some ideas will work better for you than others. Some are last resorts when nothing else work. All require time, effort and concentration. Give it your best shot. NATOPS is mandatory, but headwork prevails. It's your war machine. ◀

Cdr. Porritt is maintenance officer and NATOPS instructor NFO with VAQ-139 deployed with CVW-14 aboard USS *Constellation* (CV 64). He has 3,200 flight hours in the A-3 and EA-6B. Previous tours included VQ-2, Rota, Spain; VAQ-136, both in the Mediterranean and Japan; and VAQ-129, NAS Whidbey Island, Wash. He holds a masters degree in international relations from the Naval Postgraduate School, Monterey, Calif.





"I desperately need a huge accident where no one gets hurt."

## Pleas From a Frightened Safety Officer

By Lt. D.K. Bullard

I bet you wonder what the Safety Officer really does or is supposed to do? You're not alone; so do I. It's probably one of the hardest jobs I've ever had. The goals are ominous and it's hard to tell when you're doing a great job; it's quite easy to tell when you're not. As you know I tour the shops providing adequate lip service and an open ear, telling you to "be safe." Even though you nod your head and politely agree I can tell that inside you feel uncomfortable because an officer is in your shop. I'm put in the position of being your conscience, speaking at times to deaf ears. You know what I need? I desperately need a huge accident where no one gets hurt. That will show you. I need something to scare the hell out of you so, like the little kid who is being punished, you'll promise never to do it again and unplug those deaf ears, at least temporarily. Ever notice how many people come to watch after an accident has occurred? Oh, I know it will mean a lot of paper work for everyone concerned, but at least I'll make a point and you'll get the message.

The above sounds pretty crazy, huh? Well, it's not. It usually takes an accident to wake people up. If I have learned anything as a safety officer, it's that there are always indicators prior to the big event. They're typified by continuous, monotonous routines, small deviations from established procedures, decreased participation in safety support programs and a general feeling of well being and invincibility. Sounds like your job, doesn't it? If I were to evaluate our squadron today I would say all of the indicators are there. The following has happened in just the past 10 days.

- Seat left unpinning
- Pilot left head knocker up
- Full drop-tank inadvertently dropped
- Power left on unattended aircraft
- Rack ejector foot inadvertently fired
- Kidde valve not reset and not griped
- Can opener found underneath ejection seat

- Maintenceman required four stiches after walking into aircraft
- Two plane captains decided to settle differences with knuckles
- Only four squadron aircraft personnel at three consecutive FOD walkdowns
- Aircraft 404 inspected for fastener control, found four unmarked/missing
- Ordnance pins pulled while pilot was cycling controls
- Aircraft taxiing too fast, skidded 20 feet

Analyzing the above "aw . . .," it won't be long before I have your attention. The only problem is that I need to be sure I'm not the one who causes the accident or the one who gets hurt. It just wouldn't look good, being the squadron safety officer. In my endeavor, I need your help, to watch me. Please take special care with my airplane. I'm not sure which one I'm going to fly so just to be sure, make it *all* of the aircraft. I'm deathly afraid of picking up FOD and having to jump out on the cat, so please attend the FOD walkdowns. Let me know if I'm doing anything unsafe or if guys around me could cause my catastrophe. Please take your time and follow the procedures when fixing my gripes; I need it done right. We just moved back out in the middle of the I.O. and the ship is the only place I have to land. If you do all of this I promise I'll watch you too, so the "big event" doesn't happen to you either. All in all, those recent indicators tell me that we're not far off from the "big event" and I'm scared to death it may be you or me.

I strongly encourage you to make this same pact with your buddies. I can't watch 24 hours a day, but I'll do the best I can. I also plan to contact a few of your buds to watch me in case you don't. I figure four, eight or 100 eyes are a lot better than only your two eyes. Maybe if we all watch each other and make sure we're doing our part perfectly, it will happen to the other guy. I sure hope so; I promised my wife and kids I'd see them in May.

Lt. Bullard is a member of VA-27, flying A-7Es.

Cdr. Johnny L. Roberts  
VAW-121

28 Returning to USS *Dwight D. Eisenhower* (CVN 69) on a night EMCON recovery, Cdr. Johnny Roberts, pilot-in-command, (flying in the right seat) and crew were on the ball at less than a quarter of a mile when the LSO told the E-2C Hawkeye to take a close interval wave-off for an A-7 Corsair. Application of military power brought a loud bang, fireball and sparks from the Hawkeye's starboard engine. As the E-2C crossed the ramp, a severe right yaw pushed the aircraft toward *Ike's* superstructure. At this point, Roberts took control of the aircraft, added max power on the port engine and applied full left rudder and aileron to arrest the rapidly developing right drift. Close aboard the island at approximately 30 feet off the deck, 88 knots and stall shakers activated, he raised the gear and lowered the nose to maintain flying speed. Crossing the "angle," he was able to gingerly stabilize the altitude below flight deck level, regain safe flying speed, reset the flaps on schedule and slowly climb to 1,200 feet MSL. With the help of *Ike's* CATTIC, Bluetail 602 was vectored downwind and Roberts swapped seats in the cockpit for the upcoming single-engine CCA, a "rails," OK-2 underlined, uneventful single-engine CV arrested landing.

(This was not apparently the first time Cdr. Roberts had to deal with a bogdown close-in from the right seat. Several years ago as a junior lieutenant commander he saved another E-2 from a dual bogdown just over the ramp, dropped off the angle — maybe even "scraped" the water — and eventually managed to bring the Hummer back up. The Boss was calling "Hummer, get it climbin'!" Roberts replied, "I'm trying, Boss, I'm tryin'!")



# BRAVO ZULU

Maj. James Cartwright, USMC  
Maj. Douglas Wyatt, USMC  
VMFAT-101

Maj. Cartwright (pilot) and Maj. Wyatt (RIO) were conducting a post-maintenance check flight of an F-4S. At liftoff, the stick abruptly moved full aft with considerable force. Cartwright immediately depressed the emergency disengage switch with no results. As the aircraft continued to pitch past 30 degrees nose up, he used both hands to physically force the stick forward to maintain a semblance of level flight. Wyatt radioed the tower to declare an emergency and request a wide downwind to an LSO-assisted arrested landing.

Struggling to maintain level flight, the pilot maneuvered the plane away from populated areas while dumping fuel and performing NATOPS procedures for runaway trim. An ejection was considered.

Once clear of populated areas, the aircraft was slowed to reduce aft stick pressure. The aircrew decided to attempt a half-flap straight-in approach. With the tower notified as to the intentions and the crash crew standing by, Cartwright flew the crippled Phantom to a heavy gross weight arrested landing.

Investigation later determined that a newly-installed stabilator power control level had failed, causing the full aft stick condition. The crew's professional analysis and response to the emergency saved a valuable aircraft and crew.



Occasionally, we get inquiries as to the derivation of the Bravo Zulu feature, as well as the meaning of the term "Bravo Zulu." Bravo Zulu, the precise meaning of which is "Well Done," was apparently first used during World War II, perhaps by Admiral Bill Halsey himself, although the exact date and circumstances are lost. BZ is a category of the signalman's terminology called a "governing group," and is used to set off a group of data or messages which follow the BZ.

Every service safety magazine has its own laudatory feature, and Approach used a succession of titles before settling on Bravo Zulu. The first was "Old Pro," followed by "Good Show" (the British use a similar title), then "Well Done." The first Bravo Zulu appeared in the February 1972 issue of Approach and has become a regular feature of the magazine ever since.

If you want to submit a BZ nomination, here's how. The nomination must be submitted through the commanding officer of the squadron, chopped through the appropriate air wing, MAG or PATWING. A 5x7 black and white photo of the aircrew involved should also accompany the story and endorsements. Photos of the event are always welcome, such as a barrier arrestment or landing approach. Views of damaged equipment, i.e. canopies, tires, are also important.

Send the nomination to:  
Editor, Approach Magazine,  
Naval Safety Center, NAS  
Norfolk, Virginia 23511-5796.

Maj. Douglas Wyatt, USMC (left),  
Maj. James Cartwright, USMC (right).

# Human Factors Considerations in Detachment Planning

By Lt. Jerry M. Linenger



30

THE problem of poor personnel interactions develops whenever full consideration of human factors is ignored during operational planning. The lack of consideration of such entities as personality conflicts among aviators, differential "style" approaches toward flying and disruptive, inadequate sleep cycles will undoubtedly undermine morale, crew coordination and most importantly, personal pride, satisfaction and proper motivation toward performance. Disregard of a people-oriented management approach leads to stressed personnel, poor interpersonal transactions and creates, in short, a generally unsafe, noncooperative environment for operations.

To be sure, operational commitments and tempo often preclude full consideration of human factors. Contingencies such as last minute operational messages and unexpectedly downed aircraft impinge upon the ideal we all hope to achieve in human factors management. Indeed, crews must be willing to accept and adapt to changing situations.

Nevertheless, in order to operate safely, ensure high morale and keep personnel **positively** motivated, human factors planning cannot be put on the "back burner." A stressed-out aviator involved in a mishap fails at mission accomplishment. Quality performance cannot be achieved by alternating pilot/co-pilot teams daily without regard to personalities involved or to individual flying styles. The humanistic approach toward management is not at the other extreme from the operational approach. Instead, they compliment each other by producing safe and at the same



time, satisfying, mission accomplishment.

An analogy with the recent change of perspective toward attacking medical problems is illustrative. Instead of defining health (negatively) as merely the absence of disease or infirmity, the enlightened approach views health (positively) as the state of complete physical, mental and social well-being. Sustaining well-being. Optimizing human resources. Keeping people at their absolute best and, therefore, avoiding crisis management (which, in the medical world, equates to hospitalization). This positive approach toward health care produces a superior result just as a positive,



Periodic time off does wonders for a proper disposition and good mental health.

humanistic approach toward operational management enhances both end result and personal satisfaction toward safe mission accomplishment.

Human factors, therefore, *must* be considered in proper operational planning. Specific examples of human factors improvement areas, drawn from a large detachment consisting of mixed, dual-controlled aircraft flown from a non-familiar airfield, follow. By generalizing the principles illustrated, similar planning can be incorporated into any detachment regardless of aircraft type, size or location. Undoubtedly, compromises must be made at times, but it should also be stressed that planning without emphasis on human factors leads to a demoralized, unsatisfied, worn-out and most importantly, unsafe aviator.

**Crew coordination.** Professional athletic teams go with their starting lineups — substituting even a single player throws off the “timing” of the entire unit. Teamwork develops, and a player, without even looking, knows where his teammate is, knows his strength, knows his “moves.”

Detachments are inherently disruptive toward life styles. Why add daily insult by continually changing crew composition? Whenever possible, specific pilot/co-pilot (and ideally, loadmaster and plane captain) teams should fly together. Secondly, of lesser importance but at least worthy of consideration, they should fly in the same aircraft (therefore becoming familiar with its weaknesses and better able to accurately report adverse trends to maintenance).

Finally, some thought should go into the assignment of those “teams” — looking not just at qualifications (obviously the prime consideration) but also at the human factors involved. Through my own personal observations as a crew member on various flights, the mismatches become readily apparent. Flying “styles” are highly variant in different aviators, and, therefore, proper initial matching of “partners” is crucial. For example, two meticulous aviators who plan to the minutest of details would be more comfortable flying together, with cockpit coordination thus enhanced.

**Sleep disruption/quality of off-duty time.** Wake anyone up from a sound sleep and they won't function at 100 percent for quite some time (proven by controlled studies and by my personal experience performing appendectomies at 3 a.m.). Furthermore, the impairment continues the following day with mental clouding and a just plain unfriendly demeanor! Early morning launches **must be compensated for** with adequate, quality off-time. Specific recommendations include:

**Permanent SDO:** Every major det should have one. No pilot should be up all night trying to perform after flying all day, or worse yet, flying within two days following sleep deprivation. (Mishap reports record 72-hour histories —

with residual sleep deprivation noted.) If the squadron has the assets available, they should be utilized. Furthermore, a permanent SDO quickly becomes an “expert” in the local area idiosyncrocies, becomes a stabilizing, constant “pillar” in a changing environment and can greatly aid the OIC in proper planning and execution of those plans.

**Make all assignments to the pilot/co-pilot team:** This simplifies management by cutting the numbers in half and can eliminate perceived bias toward individuals in schedule writing (i.e., rotation from team 1 to team 2, etc.).

**Periodic off-time:** Time to wash smelly flight suits (again, a noticeable problem learned from my flight time with the crews), run errands and *relax*. Does wonders for a proper disposition and good mental health. High-pressure environments demand periodic regrouping.

**Prepositioning:** Prepositioning in a timely manner lessens sleep cycle disruption by eliminating 2 a.m. briefs since the aircraft is already at the position you want it. Ideally, it also allows for orderly, unrushed aircraft preparation with quality relaxation and rest the night prior to the mission. Furthermore, giving the crew an evening off at a unique location increases morale and in the long term, improves overall squadron performance. Thus, prepositioning the evening before makes good sense from both operational and human factors viewpoints.

**Ordered lifestyle:** Humans, for the most part, deplore spontaneity. In fact, studies quantifying major life stressors weigh “change of location” heavily. Management should, therefore, attempt to stabilize the environment whenever possible. Informative briefs, future projection of operating tempo and as much advanced notice to involved crews of upcoming flights are all helpful.

**Sense of belonging:** Any squadron operating more than one aircraft type faces the problem of loyalty to type and some conflict between the different communities. Respect those differences, and assure that during a “mixed det” (i.e., two aircraft types operating) all communities feel their unique views and ways of doing things are being considered. It is prudent to specifically designate an aviator of the unrepresented aircraft type to act as representative to the OIC.

In summary, detachments create a stressful environment unlike that of operating from “home base.” Human factors considerations should be given a high priority in this unique, unstable environment, and all possible means of enhancing stability should be attempted. Furthermore, general principles outlined above apply to the proper management of all det personnel (maintenance, support and aircrews), and the same humanistic approach should be used in all levels of management. ◀

Lt. Linenger is the flight surgeon with VRC-50 in Cubi Pt. VRC-50 flies C-2, T-39 and C-130 aircraft.

# LETTERS

## Re: Let Me Make It Perfectly Clear (June '85)

*Leona Valley, Calif.* — Lcdr. Franklin Jones' article discusses the "commonly accepted practice" of turning on the landing lights prior to takeoff roll to alert other aircraft of your intentions — a sound practice. The problem of "runway transgressions" is surely a serious one; the potential danger is obvious, but the numbers! — 28,327 reported incidents in seven years is eye-watering (note letter below — ed.).

Despite FAA regulations that "clearance to a specific runway . . . is also clearance to cross all intervening runways without specific authorization," I've never believed it. As much as possible, I try to confirm that clearance — or at least state my intentions — on the ground frequency prior to entering/crossing runway. It's a low-cost insurance policy that saved my butt once, but has prevented a lot of other mistakes. Some "zip-lip" fans can call me an old lady, but that's OK. I don't ever enter a prop arc either and, you know, I've never been hit by a propeller.

Jim Sandberg  
Northrop Corp.

*Moffett Field, Calif.* — We at NASA's Aviation Safety Reporting System would like to commend Lcdr. Jones for his article. Problems associated with runway transgressions are of increasing concern to all facets of aviation and Jones has insightfully addressed those that occur during the takeoff phase. ASRS research indicates that runway transgressions involving departing aircraft show an increased risk over most other transgression types. Thus, it is heartening to read Jones' suggestion that the uniform practice of using landing lights only at the start of takeoff roll may mitigate this risk.

In preparing his article, the author requested information from ASRS which we were only too happy to supply. We would like to clarify, however, the 28,327 runway transgression report figure cited in the article. This was a misstatement on our part in our response to Jones' request. In fact, the ASRS data base contains 1,671 reports of runway transgression incidents received between May 1, 1978, and June 30, 1985. The much larger figure of 28,327 refers to the total reports of any type received by ASRS. At the time of this writing that figure has grown to 31,992.

We hope that our error has not led any readers to a gross misinterpretation of the frequency of runway transgression problems. By the same token, we do not wish to underemphasize the recognition due these types of occurrences, and we're grateful to Jones and others who are cur-

rently addressing methods of improving safety as regards the runway transgression.

William Reynard, Chief  
Aviation Safety Reporting System Office  
NASA Ames Research Center

*Victoria, Tex.* — The article in the June issue written by Lcdr. Jones left one point somewhat vague. He stated "Under present FAA regulations, when cleared to a specific runway, that clearance is also permission to cross all intervening runways without specific authorization." While that is certainly true, it should be noted that, as in OPNAV 3710.7, that permission does not include the assigned runway.

It is more clearly laid out in the Airman's Information Manual, paragraph 241, Taxiing (5), "When ATC clears an aircraft to taxi to an assigned takeoff runway, the absence of holding instructions authorizes that aircraft to cross all runways which the taxi route intersects except the assigned takeoff runway. It does not include authorization to taxi onto or cross the assigned takeoff runway at any point."

Leonard Nicholson

• Excellent comments: Runway transgressions have killed civilian and military aircrews. They include everything from animals and snow removal equipment to motorists thinking they were on highways — pilots not sure where they were. One dark night, back around 1964, I was in a vehicle authorized (honest) to be on the duty runway at an overseas NAS. I noticed what appeared to be very bright landing lights moving towards me on the runway. I cleared immediately and, sure enough, a large transport type went whizzing by.

Later I learned that the then-ambassador to Vietnam, Gen. Maxwell Taylor, was on board the aircraft heading back to Washington. I'm glad the pilot used his lights for takeoff, and I'm really glad that I didn't meet the general that night.

ACCM Frank G. McGee  
Air Traffic Control Analyst  
Naval Safety Center

Approach welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: Approach Editor, Naval Safety Center, NAS Norfolk, VA 23511-5796. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

## Re: Fuel "Famine" (June '85)

*FPO San Francisco, Calif.* — The EAGLES of VA-115 have just received our June edition of your fine magazine, but we were slightly dismayed at a description of the KA-6D given in the article "Fuel Famine."

As aircrew in the Navy's only all-weather attack and soon the only all-weather tanker aircraft, we are very conscious of keeping track of fuel. What we do not understand is where the author found an A-6 type aircraft with port and starboard low fuel warning lights? The A-6 has numerous low fuel, and fuel transfer type lights, but not those. Could he have meant the left and right fuel filter lights, the left and right fuel psi lights or the inboard and outboard wing psi lights? All of these are indications of fuel related problems. None are indications of a fuel quantity problem though. The only light in the A-6 type aircraft that relates directly to fuel quantity is the low fuel caution light. This light is specifically mentioned in NATOPS to be the light to believe in.

Thank you for the fine publication. We appreciate the chance to learn from the rest of the fleet's experiences.

• We regret the confusion. The port and starboard fuel lights referred to in the article were actually the "fuel psi lights," which you mention. What we neglected to say, however, was that the "low fuel caution light" also illuminated after the port fuel psi light and before the starboard fuel psi light went on. We always appreciate hearing from the fleet who, after all, are the experts for whom we write. — Ed.

## Re: Confessions of a Hot and Tired Aviator (June '85)

*San Francisco, Calif.* — I would agree with your final assessment of the conditions which led to the incident in question, yet I strongly disagree with the unfounded remark that, "It was a good thing my wingman wasn't a Marine or he probably would have followed me off the runway into the weeds." The interjection of levity into an article dealing with a very serious situation is uncalled for. Marine Aviators, as Naval Aviators, are highly skilled and professional individuals who are capable of evaluating the situation and making the correct decision, including one which is as relative as determining his physical condition for flight and the difference between a runway and a field.

1stLt. Nathan O. Webster, USMC  
VMGR-152  
MAG-36

## The Convincer

The Convincer is a short ride with a sudden stop. It was developed to prove the worth of wearing seat belts. The photos give an idea of how it feels to make such a stop even when properly buckled up. The rider's expressions are real. He felt a jolt simulating the sudden stop experienced in a real accident. If you have any misgivings about speed and wearing seat belts remember the man in the pictures and the fact he was only traveling seven miles per hour.





DETROIT PUBLIC LIBRARY

JAN 15 1986

TECHNOLOGY & SCIENCE

**“Ikin drife  
ashgood ash  
n’body.”**

**Don’t believe it for a minute.  
Ride with a friend.**



RAR

CE